Listing of the Claims

1. (Original)   A magnetic resonance imaging method comprising

acquisition of magnetic resonance signals including application of diffusion weighting and involving a plurality of diffusion weighting strengths and a plurality of diffusion directions

reconstruction of an object dataset from the magnetic resonance signals

the object dataset assigning apparent diffusion coefficients to voxels in a multidimensional geometric space and

identifying the occurrence of a single or several diffusion directions in individual voxels of the object dataset.

2. (Original)   A magnetic resonance imaging method as claimed in Claim 1, wherein the apparent diffusion coefficients for individual voxels are decomposed into contributions for the respective diffusion direction(s) for the voxel at issue.

3. (Original)   A magnetic resonance imaging method as claimed in Claim 2, wherein the decomposition of the apparent diffusion coefficients is done on the basis of equal diffusion strengths for the identified principal diffusion directions in the voxel at issue.

4. (Original)   A method of analysis of an object dataset assigning apparent diffusion coefficients to voxels in a multidimensional geometric space, the analysis comprising identifying the occurrence of a single or several diffusion directions in individual voxels of the object dataset from a plurality of diffusion weighting strengths and a plurality of diffusion directions for individual voxels.

5. (Original)   A computer program for analysis of an object dataset assigning apparent diffusion coefficients to voxels in a multidimensional geometric space, the computer program comprising instructions to identify the occurrence of a single or several diffusion directions in individual voxels of the object dataset from a plurality of diffusion weighting strengths and a plurality of diffusion directions for individual voxels.

6. (Currently Amended)   A magnetic resonance imaging system arranged to

acquisition (1) of magnetic resonance signals including application of diffusion weighting and involving a plurality of diffusion weighting strengths and a plurality of diffusion directions

reconstruction (2) of an object dataset from the magnetic resonance signals

the object dataset assigning apparent diffusion coefficients to voxels in a multidimensional geometric space and the magnetic resonance imaging system including an image processing unit (3) to

identify the occurrence of a single or several diffusion directions in individual voxels of the object dataset.